

What is claimed is:

1. A heat sink system comprising:

a circuit board having a top surface and a bottom surface;

a component to be cooled which is mounted on the top surface of said circuit board;

a substrate base made from a thermal conducting material and containing a top surface and a bottom surface with a first opening extending from said top surface through the base to said bottom surface of the base and a second opening from said top surface through the base to said bottom surface of the base;

a thermal conducting spacer of predetermined dimensions with a proximal and distal end, the proximal end being connected to said component at the bottom surface of said circuit board and the distal end being connected to the top surface of said substrate base;

a plurality of fins vertically projecting from the bottom surface of the said substrate base;

driving means at least a part of which is installed in said first opening of the substrate base and which is at least partially supported by the said substrate base;

a fan rotated by said driving means whereby air is drawn by the fan through the first said opening in the substrate base and flows over the top surface of the base and exits through the second said opening of the substrate base.

2. A heat sink system comprising:

a circuit board having a top surface and a bottom surface;

a component to be cooled which is mounted on the top surface of said circuit board;

a substrate base made from a thermal conducting material and containing a top surface and

a bottom surface with a first opening extending from said top surface through the base to said bottom surface of the base and a second opening from said top surface through the base to said bottom surface of the base;

a thermal conducting spacer of predetermined dimensions with a proximal and distal end, the proximal end being connected to said component at the bottom surface of said circuit board and the distal end being connected to the top surface of said substrate base;

a plurality of fins vertically projecting from the bottom surface of the said substrate base;

driving means at least a part of which is installed in said first opening of the substrate base and which is at least partially supported by the said substrate base;

a fan rotated by said driving means whereby air is drawn by the fan through the first said opening in the substrate base and flows over the top surface of the base and exits through the second said opening of the substrate base;

a shield with at least one side wall and a top wall disposed over said side wall said shield being disposed over the top surface of the printed circuit board.

3. The heat sink system of claim 2 where the shield is made out of radio frequency absorbing materials.

4. A heat sink system comprising:

a circuit board having a top surface and a bottom surface;

a component to be cooled which is mounted on the top surface of said circuit board;

a substrate base made from a thermal conducting material and containing a top surface and

a bottom surface with a first opening extending from said top surface through the base to said bottom surface of the base and a second opening from said top surface through the base to said bottom surface of the base;

a thermal conducting spacer of predetermined dimensions with a proximal and distal end, the proximal end being connected to said component at the bottom surface of said circuit board and the distal end being connected to the top surface of said substrate base;

a plurality of fins vertically projecting from the bottom surface of the said substrate base;

driving means at least a part of which is installed in said first opening of the substrate base and which is at least partially supported by the said substrate base;

a fan rotated by said driving means whereby air is drawn by the fan through the first said opening in the substrate base and flows over the top surface of the base and exits through the second said opening of the substrate base;

a generally rectangular shaped shield with at least one side wall shield, the said printed circuit board being disposed over said shield.